

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20544**

In the Matter of

Skype Communication's Petition to Apply  
*Carterfone* Attachment Regulations to the  
Wireless Industry

RM – 11361

**DECLARATION IN SUPPORT OF COMMENTS OF AT&T INC.  
OPPOSING SKYPE COMMUNICATIONS' PETITION TO APPLY  
*CARTERFONE* ATTACHMENT REGULATIONS TO THE WIRELESS INDUSTRY**

1. My name is Kelly Williams. My business address is 5565 Glenridge Connector; Atlanta, Georgia. I am an Executive Director in the Technical organization. In this position, I am responsible for planning and developing strategy for our core network architecture. I am responsible for paragraphs 8, 9, 10, 11, 12, 13, 43, 46, 47, 48, 49, and 50 of this declaration.

2. My name is Michelle Mindala. My business address is 5565 Glenridge Connector; Atlanta, Georgia. I am the Executive Director - Product Management, Devices & Accessories. In this position, I am responsible for the consumer-focused device product portfolio, program management, SIM cards & the SIM lock policy, and AT&T Mobility's accessory business. I am responsible for paragraphs 14, 15, 16, 17, 32, and 33 of this declaration.

3. My name is Cameron Coursey. My business address is 892 Woods Mill Road; Ballwin, Missouri 63011. I am an Executive Director in the Technical organization. In this position, I am responsible for the certification and testing of devices. I am responsible for paragraphs 18, 19, 20, 21, 22, 23, 24, 34, 35, and 36 of this declaration.

4. My name is Ed Lambert. My business address is 16771 Northeast 72<sup>nd</sup> Way; Redmond, Washington. I am a Director in the Technical organization. In this position, I am responsible for the development of management of the certification process for data services and applications. I am responsible for paragraphs 37, 38, 39, 40, 41, and 42 of this declaration.

5. My name is Jim Ryan. My business address is 5565 Glenridge Connector; Atlanta, Georgia. I am a Vice President in the Marketing organization. In this position, I am responsible for Consumer Data Products and Services. I am responsible for paragraphs 44, 45, 46, 47, 48, and 49 of this declaration.

6. My name is Cathy Quaciari. My business address is 16771 Northeast 72<sup>nd</sup> Way; Redmond, Washington. I am a Director in the Business Marketing Group. In this position, I am responsible for developing data products and offerings for business customers. I am responsible for paragraphs 25-31 of this declaration.

7. The purpose of this declaration is to address certain claims made in Skype's petition for rulemaking relating to the wireless handset, application, and data usage policies of AT&T Mobility LLC ("AT&T"), formerly known as Cingular Wireless LLC. This declaration first provides an overview of AT&T's wireless network and services. It then describes AT&T's handset certification policies and, in connection with that discussion, corrects certain misstatements in Skype's petition relating to functionalities that are (and are not) enabled on certain specific handsets sold by AT&T. The declaration then discusses AT&T's application certification policies, and it concludes by addressing usage policies adopted by AT&T.

#### **AT&T's Wireless Network**

8. AT&T's wireless network – the ALLOVER<sup>TM</sup> network – has the largest digital voice and data coverage in the United States. Over that network, AT&T offers an array of

wireless voice and data services to more than 61 million customers across the nation. AT&T's network provides subscribers with a nationwide Global System for Mobile communication ("GSM") and General Packet Radio Service ("GPRS") footprint across 100% of AT&T's service area, covering the top 100 U.S. markets and more than 273 million people. AT&T's wireless network also includes the nation's largest national high-speed wireless data network with Enhanced Data rate for GSM Evolution ("EDGE") technology, which is available in 13,000 cities and towns and along almost 40,000 miles of U.S. highways.

9. In addition, AT&T has rolled out its third-generation ("3G") BroadbandConnect service, which uses Universal Mobile Telecommunications System/High Speed Downlink Packet Access ("UMTS/HSDPA") technology, a worldwide standard for wide-area wireless data communication based on W-CDMA and compatible with GSM/Edge. AT&T was the first wireless carrier in the world to deploy widely HSDPA technology. UMTS/HSDPA, in turn, provides high levels of spectral efficiency for voice and data, simultaneous voice and data capability, and can support high-bandwidth data applications.

10. AT&T's 3G services provide average mobile data connections between 400 and 700 kbps, with bursts up to more than one megabit per second, and are available in most major U.S. markets. AT&T's 3G services use the only 3G technology natively supporting simultaneous circuit switched voice and packet switched data communications.

11. In order to provide high-quality, reliable, cost-effective wireless services over its network, AT&T must address various challenges posed by wireless communications. To begin with, all wireless communications on our networks – whether voice or data – take place within assigned (licensed) wireless spectrum bands. Because each communication must occur on specific frequencies within those bands, there are absolute limits on the uses any wireless

network can support in any particular geographic area. Although advances in digital technologies allow carriers to increase the efficiency of wireless networks and to provide capacity for simultaneous uses, there are undeniable physical constraints on the wireless spectrum.

12. A related challenge is the shared and finite nature of the wireless spectrum. Because AT&T has available to it only a finite amount of wireless spectrum to serve any particular geographic area, subscribers that make inefficient uses of the network affect the ability of AT&T to provide quality and reliable services to other subscribers in that same area. Various uses by subscribers may demand substantially different amounts of the available bandwidth and thereby have different effects on AT&T's wireless network. A text-oriented message, for example, can be effectively transmitted using only 8-32 kbps, whereas a streaming video may require 100-500 kbps or more.

13. In addition to those challenges, AT&T and its partners in the wireless industry must figure out ways to deliver wireless voice and wireless broadband services and content that work well using wireless transmission, that are attractive on small handset screens, that economize on limited battery life, and that do not require the use of wireless handsets that will be priced out of the market's willingness to pay. AT&T is continually striving to provide consumers with new and innovative wireless services and content that are compatible with the physical and economic limits of its network.

#### **AT&T's Handset Policies**

14. Wireless handsets are an integral component of AT&T's wireless network. AT&T has adopted handset policies designed to encourage wireless subscribership, to ensure

device interoperability with the network, and to ensure the efficient and reliable use of its wireless network. Two relevant policies relate to subsidization and certification.

15. *Subsidization and locking.* Wireless handsets, especially those capable of providing broadband services, are expensive. If subscribers faced the full costs of those handsets, then wireless subscribership and penetration would suffer. To encourage subscribership, penetration, and use of new and more efficient handsets, AT&T, by subsidizing the price of handsets, absorbs a significant amount of the cost of a handset in return for a service commitment from the subscriber. As such, AT&T wireless handsets are “locked” – meaning that they cannot be used with a non-AT&T SIM card (it is important to note that locking does not prevent the handset, when used with an AT&T SIM, from working or roaming on other networks with whom AT&T has roaming agreements; it just prevents the device from being used with a non-AT&T SIM). The handset is locked for the duration of the service commitment or until the consumer’s contractual obligation is fulfilled. After such obligation is fulfilled, however, AT&T will allow a customer to unlock a handset upon the customer’s request if the handset supplier has permitted us to do so and has provided AT&T with this capability.

16. By enabling AT&T to recover the substantial subsidies incurred in the sale of handsets over the service-commitment period, locking encourages AT&T to provide those subsidies. Absent locking, it would be cost-prohibitive for AT&T to offer substantial handset subsidies.

17. AT&T does allow handsets to be purchased without service plans (and therefore without subsidies) and will unlock those handsets upon a customer’s request if the handset supplier has permitted us to do so and has provided AT&T with this capability. Consumers therefore have a basic choice of purchasing a subsidized handset with a service commitment and

having their handset locked or purchasing an unsubsidized handset and having AT&T immediately unlock the handset. The overwhelming majority of consumers elect the subsidy that comes with a service commitment and a locked handset.

18. *Handset certification.* Handset certification is a process through which AT&T strives to create an integrated end-to-end experience for consumers. AT&T's business goal is to create a complete end-to-end service such that subscribers know that the services, features, and equipment that they use in connection with AT&T's network will be of the highest quality.

19. AT&T's certification policy is one way that AT&T ensures that handsets are compatible with and optimized for use on its network. The aim of certification is to maintain interoperability and integration between the wireless device and the network, thereby providing the best quality service for the subscriber without jeopardizing the service of others. Handset certification is also an important means for identifying and remedying security vulnerabilities in handsets, maximizing handset performance characteristics such as battery life, and assuring that devices perform and meet certain regulatory compliance requirements.

20. Part of AT&T's certification practice includes Subscriber Identity Module Over-the-Air ("SIM OTA") requirements placed on both the handset and SIM. AT&T's SIM OTA requirements are, in part, to ensure that a handset allows the updating of roaming profiles on a subscriber's SIM card in an efficient manner. The advantage to the subscriber is that the handset is able to roam on networks that offer the best roaming rates.

21. Handset certification is particularly important for AT&T. AT&T's wireless network is composed of a number of different GSM and UMTS network suppliers, which makes certification necessary to ensure that a handset interoperates with each of the GSM and UMTS network suppliers that AT&T uses across the country. AT&T accordingly tests every handset to

ensure that the correct GSM and UMTS network is selected in various scenarios, and that the network is selected rapidly and seamlessly. This aspect of certification ensures that subscribers do not experience service interruptions when crossing boundaries between network suppliers.

22. AT&T's handset certification policies also promote spectral efficiency. The certification requirements include Radio Frequency ("RF") performance standards, which test the effects of the device antenna and customer usage (especially hand positioning) on handset performance. The advantage to the subscriber of this aspect of certification is that the subscriber receives a better-performing handset. Certification also requires that a handset contains an adaptive multi-rate vocoder, which is more spectrally efficient than other GSM-based vocoders. The adaptive multi-rate vocoder adapts to varying signal quality conditions using more bandwidth when the signal is strong and using less bandwidth with additional bit error and dropout corrections to provide higher quality when the available signal strength is low. This permits more callers to share a given amount of bandwidth at a higher average voice quality. Devices without such features experience lower call quality. These vocoders contribute substantially to the efficiency of AT&T's network.

23. AT&T's certification policies also enable AT&T to integrate handsets with services or features provided over AT&T's network. Without certification, a subscriber will not be guaranteed the same experience or the ability to use certain data and voice services, including Instant Messaging, AT&T Cellular Video, and Push to Talk. Similarly, many handset functions, such as the Message Waiting Indicator, may not function properly absent certification.

24. Handset certification also permits AT&T to offer first-rate customer service. When wireless subscribers have difficulty with any aspect of their service, including their handsets, they typically call the service provider (in our case, AT&T). To respond to these calls,

AT&T's service representatives are trained to support handsets that are certified for use on AT&T's network. If a handset is deemed to be defective through this support and triage work, AT&T will also support the customer with an in-warranty exchange. Handsets that are not certified for use on AT&T's network, by contrast, are not supported by AT&T's customer service representatives, nor would they be eligible for warranty exchange. When customers using such handsets encounter difficulties with their service, they may have no practical means for obtaining support. This is no minor issue: internal AT&T testing reveals that certified handsets that are currently being marketed have 12% fewer dropped calls than all devices on the network that includes certified, non-certified, and roaming devices. For the reasons stated above, AT&T discourages the use of uncertified handsets on its network.

### **The Nokia E62 and Handset Functionalities**

25. AT&T does not itself manufacture wireless handsets; instead, it relies on a range of manufacturers. Yet AT&T faces the market imperative of selling unique and differentiated services and functionalities at a variety of price points to compete effectively in the wireless industry. To that end, AT&T specifies needs and requirements for handsets via a "Request for Proposal," or "RFP," process. AT&T's RFP practices are designed to ensure that AT&T has a broad portfolio of handsets that meets the needs of various market segments, that supports differentiated AT&T products and services, and that provides the best cost to AT&T and ultimately to AT&T's customers.

26. AT&T's overriding goal is not to limit handset functionalities, but to provide an array of handsets with unique and innovative features at various price points. The addition of any functionality, however, can substantially affect handset cost, usability, and battery life. Those factors bear heavily on consumers' adoption of particular handsets. In choosing which



functionalities to include on a handset, AT&T must therefore balance many factors. Contrary to Skype's unsupported claims, AT&T's practices with respect to the Nokia E62, WiFi, and Bluetooth are neither anticonsumer nor anticompetitive, but instead reflect this attempt to balance functionality against cost and the likelihood of consumer acceptance.

27. *Nokia E62 and WiFi.* Skype's petition takes the position that AT&T's choice to sell the Nokia E62, rather than the Nokia E61, was an effort to "cripple" handset functionality. In fact, the Nokia E62 is part of AT&T's "email for everyone" strategy, designed to make email-capable wireless handsets available to a wider range of consumers than the high-use business customers that traditionally have purchased such functionality. In the efforts that led to the Nokia E62, AT&T was looking for a smartphone that would have broad consumer appeal in U.S. markets. Put simply, AT&T wanted a low-cost handset with email capability, something that could compete generally with the Blackberry but also appeal to the mass market as well as business customers.

28. In AT&T's judgment, the Nokia E62 had the right functionalities – *e.g.*, optimized email capabilities and a QWERTY keyboard – at the right cost. Cingular introduced the Nokia E62 at a price as low as \$149.99 with service contract and recently reduced the online price to \$69.99 with a two-year service commitment and rebate. AT&T did not choose the Nokia E61 because it did not believe that it was competitive in comparison to smartphones, such as Blackberries and Treos that AT&T already carries in its portfolio in similar price ranges.

29. The Nokia E61 was introduced in Europe as a high-end, feature-rich handset for European business professionals. It includes a number of functionalities that raise the cost of the handset: high-speed UMTS capability (but only on the 2100 MHz frequency band used in

Europe, rather than the 850/1900 band used for broadband by AT&T in the United States); quad-band GSM/EDGE; a 324 MHz processor; and WiFi.

30. Additionally, the Nokia E61 operates on the Symbian OS platform favored in Europe, which is not widely used in the United States and would have faced tough competition from Blackberry, Windows Mobile, and Palm devices at the existing E61 price level. The retail cost of the Nokia E61 would have been between \$400-500 per unit, which would have priced it out of AT&T's target market segments. In AT&T's judgment, the Nokia E61 was not suitable for the market segments that AT&T wanted to target.

31. Contrary to Skype's claim, AT&T did not select the Nokia E62 in order to "cripple" WiFi functionality. WiFi adds to the cost of a handset, both directly (insofar as the WiFi components must be built into the phone) and indirectly (insofar as it strains battery life). In AT&T's judgment, that cost was not consistent with AT&T's targeted market segments. It bears mentioning that, as an on-line review of AT&T's product set reveals, AT&T sells a range of handsets with WiFi functionality, including Cingular 8525, Cingular 8125, and iPAQ products. And AT&T's portfolio of dual-mode devices with WiFi is only expanding.

32. *Bluetooth.* Skype's petition also raises concerns about certain carriers' practices with respect to Bluetooth. AT&T does not disable Bluetooth functionality on any wireless handset that it sells. In fact, AT&T has adopted a business model that encourages consumers to "sideload" content – *i.e.*, to transfer content directly between a PC and a handset – through, among other means, Bluetooth.

33. By the end of the first half of 2007, more than 80% of AT&T's handsets will be Bluetooth-enabled, and many of those will enable sideloading. To support sideloading, AT&T offers a Bluetooth USB "dongle" accessory, which plugs into any PC USB port or Bluetooth-

capable printer port to establish wireless connectivity between these peripherals and Bluetooth sideload-capable handsets. Not only can consumers then sideload and manage their music or photos on their PC, but they can also print photos directly from their handset to the Bluetooth-enabled printer. Additionally, AT&T offers more than a dozen other Bluetooth accessories that are tested for interoperability with AT&T's Bluetooth handsets. In addition to mono- and stereo-Bluetooth headsets, keyboards, and speakers, AT&T also offers a Bluetooth GPS receiver. When used with a GPS application and Bluetooth-compatible handset, this GPS receiver can provide location and mapping information to the handset.

34. Although Bluetooth provides functionality that can enhance consumers' wireless experience, Bluetooth can also pose security and privacy concerns if not implemented correctly. In 2005, hundreds of Cingular handsets were infected by the "CommWarrior virus," which was spread in part through Bluetooth. Had Cingular not responded quickly, the virus could have infected more than a hundred thousand handsets. Once infected, a handset would begin searching for other handsets to infect via Bluetooth or messaging. By hijacking consumers' handsets, the virus had the potential to run-up substantial charges without the knowledge of the subscriber.

35. Bluetooth also creates challenges in protecting subscribers' privacy, which AT&T takes very seriously. For example, the practice of "bluejacking" other users' wireless handsets – *i.e.*, surreptitiously obtaining the personal information stored on a consumer's handset via a Bluetooth port – poses a significant threat to customer privacy. AT&T takes these and similar threats extremely seriously. To this end, AT&T has placed specific Bluetooth security requirements on our handset suppliers, and security is one of the items on AT&T's checklist

before approving a handset. Consequently, handsets that are not certified by AT&T may contain more Bluetooth security risks.

36. Bluetooth also creates challenges for interoperating between handsets and Bluetooth-enabled accessories and car kits. Due to the large number of Bluetooth accessories that are available on the market, issues have been experienced making sure that handsets work with them. AT&T has taken a leadership position in the industry, including heading a Bluetooth interoperability working group with the Cellular Telecommunications Industry Association, to address these interoperability issues. AT&T has over 300 security professionals devoted to protecting our customers, our networks, and our brand image by utilizing and applying industry security best practices. We participate in many national and international forums related to telecom and mobile security in addition to fraud and mobile malware.

#### **AT&T's Application Certification Policies**

37. As noted above, AT&T is presently facing the challenge of providing customers with broadband content that is attractive in a mobile setting. This effort is critical to the long-term prospects of the company; AT&T's chief competitors are also deploying 3G networks and new and innovative content, and AT&T must meet and exceed their efforts in order to be successful in the marketplace. AT&T thus has a strong incentive to encourage the use of a large and diverse range of applications on its handsets that are compatible with AT&T's services.

38. AT&T manages this process in part through application certification procedures designed to support the quality, reliability, security, and efficiency of its network. AT&T does not require the certification of all applications that run on AT&T handsets. Instead, certification procedures are a way of addressing threats to the *network* and to subscriber data by granting different levels of access to devices' Application Programming Interface ("API"), including

SIM/PIM functionality, location data, and wireless interfaces and protocols that provide network functionality and expose subscribers to remote threats. API is a source code interface that supports requests made of the wireless operating system. SIM is a Subscriber Identity Module that contains information about a wireless subscriber, while PIM is a Personal Information Manager application that organizes, records, and manages personal information.

39. As a preliminary matter, AT&T does not require the certification of applications that do not affect AT&T's network and that do not require access to a subscriber's information. Many third-party games and productivity tools therefore do not need any certification to operate on wireless handsets in AT&T's network.

40. AT&T does, however, test and certify applications that require access to network resources or to subscriber information. AT&T has established a tiered system of access to network resources. AT&T's application signing policies reflect a sliding scale of access: the greater the confidence that AT&T has in the safety and reliability of the application, the greater the access to subscriber information and network resources.

- a. *Cingular Trusted Domain*. This domain includes applications that are AT&T-branded or sponsored by AT&T and are given unrestricted access to API and all network resources and subscriber information.
- b. *Cingular Preferred Domain*. This domain includes applications that have restricted access to secure or sensitive capabilities. The preferred certificate allows AT&T developers and trusted third-party content providers access to a subset of network resources and subscriber information.

- c. *Manufacturer Domain.* Applications in this domain are provided by handset manufacturers. A manufacturer may pre-install an application on a handset if the application has gone through AT&T's supply-chain approval process.
- d. *Enterprise Domain.* This is a future domain that is intended to include application certificates agreed to by AT&T and enterprise customers. The aim is to reach agreement on policies that promote the reliability and security of both internal enterprise networks and AT&T's wireless network.
- e. *Trusted Third-Party Domain.* The trusted third-party certificate allows developers to acquire a certificate from a certificate authority – including Verisign, Thawte, and Geotrust – without involvement by AT&T. The certificate allows limited access to network resources.
- f. *Un-Trusted Third-Party Domain.* An un-trusted application is an application that either has not been signed or has been signed by other than an AT&T-authorized signing authority. These applications are very restricted and given no access to subscriber information or network resources.

41. Applications certified in each domain have different restrictions on access to network and handset resources. By way of examples, each of the domains can access HTTP/HTTPS and datagram functionality (a packet transmitted using IP); however, only applications signed at the Cingular Trusted Domains can access a Secure Socket Connection (a persistent connection) or a Session-Initiated Protocol connection. Because of privacy and security concerns, only the Manufacturer and AT&T Trusted Domains can access the SIM card. Tables outlining the specific domain for each API are publicly available at:

<http://developer.cingular.com/developer/index.jsp?page=toolsTechSection&id=2400075>

42. AT&T's application certification policies are crucial to the management of AT&T's network. A handset that is "infected" by a malicious application could, among other things, send messages and incur charges without the handset owner knowing, transmit personal information from the device, repeatedly dial 911, drain handset batteries, create congestion on the network, or even mount a Distributed Denial of Service attack (D-DOS attack). A poorly designed application that works over the network could also affect the reliability of wireless service for other users. Those costs, which are imposed both on the subscriber and on the network as a whole, affect consumers' perceptions of the quality, privacy, security, and reliability of AT&T's service.

#### **AT&T's Data Usage Policies**

43. AT&T's network has a fixed amount of wireless spectrum that it can use to serve any particular geographic area. In addition, AT&T has engineered its network based upon certain assumptions regarding how often customers will use their wireless service and, when they do, how much spectrum they will need. Within these limitations, AT&T has a responsibility to manage its network such that all subscribers receive reliable and high-quality service. One tool that AT&T uses to manage network resources is a usage policy. The usage policies in AT&T's service plans are essential to the management of AT&T's network.

44. AT&T offers a range of data plans tailored for specific data services and devices, such as Blackberry Connect for consumers who want to use email or similar services and Laptop Connect for consumers who want wireless laptop access. For each type of device, AT&T generally offers customers a choice of megabyte-limited or unlimited plans. An AT&T customer, for example, can purchase either a 4 MB Blackberry Connect plan for \$39.99 and pay \$0.005/KB for additional usage or an Unlimited Blackberry Connect plan for \$49.99.

45. AT&T's data plans are subject to usage policies that restrict certain categories of use, as disclosed in AT&T's Wireless Data Service Terms and Conditions. AT&T, for example, restricts the use of services such as web camera broadcasts, continuous JPEG file transfers, telemetry applications, private line backup, and Voice over Internet Protocol ("VoIP"). AT&T offers separate service plans for some restricted uses, such as telemetry and private line backup services.

46. AT&T's usage policies are crucial to the management of its wireless network. AT&T has not engineered its network or priced its services to support the bandwidth demands of those restricted services identified in our usage policies. As noted, AT&T's network is engineered based upon assumptions as to how consumers will use their service. AT&T's basic usage profile is that most consumers want to use their wireless handset for services that are optimized for mobile use – including voice service, text-messaging, email access, and limited web-browsing. The economics of AT&T's build-out, as well as the rates that AT&T charges in its pricing plans, are based upon that usage assumption. AT&T's usage policies are an attempt to implement that assumption and to ensure that a minority of subscribers does not undermine the usage profile.

47. These policies ensure the quality and reliability of AT&T's network for all users. Bandwidth-inefficient applications – particularly applications such as VoIP and continuous JPEG transfers or content that are not optimized for wireless use – consume disproportionate amounts of bandwidth and may affect the quality and reliability of use by other subscribers in the same geographic area. Widespread use of such applications would compromise service to other customers and could limit the number of subscribers that AT&T could serve in any geographic area.



48. In AT&T's experience, alternatives to a categorical approach – such as per-megabyte payment options or aggregate caps (without usage restrictions) – may not be commercially practicable, as customers are generally unfamiliar with calculating megabyte usage and demand monthly data packages. Similarly, time-of-day or peak load controls are expensive to implement and are also difficult for consumers to understand. AT&T's experience in the marketplace reveals that most customers want the predictability that comes with unlimited plans, which in turn requires that AT&T restrict uses that would undermine the economic or physical viability of its network.

49. In addition, an aggregate cap on absolute bandwidth usage – without restricting categories of uses – would not solve the problems presented by bandwidth-inefficient applications: the problems presented by such applications are not simply tied to aggregate use, but also to the intensity of use. That is because, at any one time in any specific geographic area, subscribers who put excessive demands on the wireless network can affect the performance of the network for other users even if, on a monthly basis, those subscribers' usages fall within an aggregate bandwidth cap. In AT&T's experience, restrictions of inefficient uses can address those concerns in a commercially practicable manner.

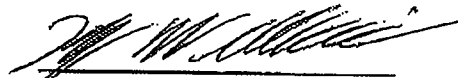
50. VoIP as it is currently implemented in the fixed IP network is an example of an inefficient application, not optimized for wireless network usage. AT&T has diligently designed its network to optimize circuit switched voice to maximize scale and cost efficiencies. In general, carrying VoIP packets as implemented in the fixed IP network over the wireless data network consumes a disproportionate amount of bandwidth per minute of use or per call when compared with circuit switched voice on the same UMTS/HDSPA network and would, if widely used, diminish the quality of service for other users or limit the number of users in a particular

geographic area that AT&T could serve. In terms of bandwidth consumption, a circuit switched wireless call takes on average between 5.9-12.2 kbps whereas a non-optimized internet VoIP call over the wireless network could take upwards of 2 to 5 times more capacity depending on the implementation such as voice codec and other variables. The industry is looking at ways to implement VoIP in a more efficient manner and evolving more sophisticated networks to provide quality of service. One example is the 3GPP Release 7 that specified features for improving VoIP and other real-time services.

51. This concludes our declaration.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

April 26, 2007

  
Kelly Williams

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

April 25 2007



Michelle Mindala


I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

April 25, 2007

Cameron Coursey  
Cameron Coursey

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

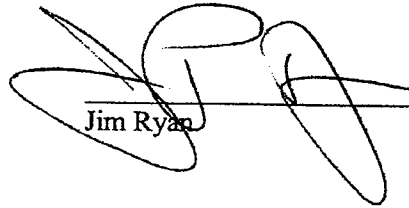
April 24, 2007

A handwritten signature in black ink, consisting of stylized, overlapping loops and a long horizontal stroke extending to the right.

Ed Lambert

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

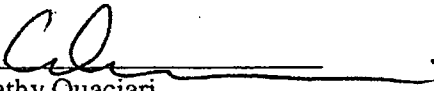
April 25, 2007



Jim Ryan

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge and belief.

April 25, 2007

  
Cathy Quaciari